

1 **Specification**

2 **METHOD AND APPARATUS FOR CONTROLLED CAMERA USABILITY**

3
4 **Background of the Invention**

5
6 **Field of the Invention**

7 The present invention relates generally to digital cameras, and more particularly to a
8 method and apparatus for eliminating unauthorized use of a camera, and for deterring camera
9 theft by programming the camera to operate only under predetermined conditions.
10

11 **Description of the Prior Art**

12 Digital cameras prior to the present invention have not been configured to prevent
13 unauthorized use or discourage theft. In the area of film-based cameras, a mechanical apparatus
14 for discouraging unauthorized use of a rental camera is disclosed in U. S. Patent No. 5,708,856
15 by Cloutier. It involves requiring the removal of a locking screw prior to loading or unloading
16 film, a process which appears to make it more difficult, but not impossible for a borrower to
17 remove and replace film. In commercial or industrial facilities of various kinds, numerous
18 expensive digital cameras are in use. Due to the small size and general applicability of present
19 digital cameras, unauthorized use and theft are matters for concern. Similarly, in the case of
20 rental cameras, some means for encouraging the return of a digital rental camera is needed, as
21 well as a means for limiting the use of a camera, for example to a predetermined time interval, or
22 a fixed number of images according to a rental agreement. In the case where a digital camera is

1 Referring again to Fig. 5, the camera 10 is programmed to require reception of an
2 operational code in order to function (block 82). The camera 10 is further programmed to check
3 for a renewal of the operational code at periodic intervals of time ΔT , or at the occurrence of a
4 specific initialization process such as when starting up the camera, or prior to taking a picture.
5 If the renewal code is received 90, operation can continue. If the renewal operational code is not
6 received 92, the camera according to the program, shuts down the camera operation (block 94).
7 The owner can also optionally program a required user access password (block 82) for the
8 purpose of deterring unauthorized use within the otherwise operational physical boundaries/zone.
9 In operation, a user would enter his user access password (block 84) and operate the camera
10 (block 86). The transmitter 28 repeatedly broadcasts the operational code. The camera checks
11 for a renewal of the code transmission (block 88). If the camera 10 receives a renewal of the
12 operational code (90), the camera continues to be operational. If no renewal of the code is
13 received (92), the camera automatically shuts down operation (block 94).

14 Figs. 6A and 6B illustrate an alternate embodiment wherein an encryption procedure is
15 performed on the image data, and then stored in the camera in an encrypted form. Only the
16 owner has the key to decrypt the data, and as a result, a user is provided with an added incentive
17 to return the camera in order to get a useable copy of the acquired image data.

18 Block 95 of Fig. 6A is a replacement for any of the "operator camera" blocks 56, 72, 86
19 of Figs. 3, 4 and 5. According to Fig. 6A, in order to implement the encryption feature, the
20 operate camera block 95 performs the process of image capture 96, followed by an encryption of
21 the incoming image data 98, and then stores the encrypted image data 100. The camera then
22 stores only the encrypted image data, the original then being available only to a person